



SEQUENCE LISTING

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AUG 08 2002

FBI CENTER 16

<110> Liu, Qingyun
 McDonald, Terrence
 Bonnert, Timothy P.
 Ng, Gordon
 Kolakowski, Lee F., Jr.
 Clark, Janet
 Bonner, Tom I.

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<140> 09/601,582

<141> 2000-12-04

<150> PCT/US99/02361

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<150> 60/073,767

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 Ala Ile Trp Gln Ile Val Asp Pro Leu His Arg Thr Ile Glu Thr Phe
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 Ala Lys Glu Glu Pro Lys Glu Asp Ile Asp Val Ser Ile Leu Pro Gln
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 Leu Glu His Cys Ser Ser Lys Lys Met Asn Thr Trp Leu Gly Ile Phe
 645 650 655
 Tyr Gly Tyr Lys Gly Leu Leu Leu Leu Leu Gly Ile Phe Leu Ala Tyr
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 Glu Thr Lys Ser Val Ser Thr Glu Lys Ile Asn Asp His Arg Ala Val
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 Gly Met Ala Ile Tyr Asn Val Ala Val Leu Cys Leu Ile Thr Ala Pro
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 Ser Arg Gln Gln Leu Arg Ser Arg Arg His Pro Pro Thr Pro Pro Asp
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 <213> Homo Sapiens

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 Leu Met Pro Leu Thr Ser Ile Met Gly Leu Met Pro Leu Thr Lys Glu
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 Val Ala Lys Gly Ser Ile Gly Arg Gly Val Leu Pro Ala Val Glu Leu
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 Asp Leu Arg Leu Tyr Asp Thr Glu Cys Asp Asn Ala Lys Gly Leu Lys
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 Ala Phe Tyr Asp Ala Ile Lys Tyr Gly Pro Asn His Leu Met Val Phe
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 Gly Gly Val Cys Pro Ser Val Thr Ser Ile Ile Ala Glu Ser Leu Gln
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 Gly Trp Asn Leu Val Gln Leu Ser Phe Ala Ala Thr Thr Pro Val Leu
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 Ala Asp Lys Lys Lys Tyr Pro Tyr Phe Phe Arg Thr Val Pro Ser Asp

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Gln	Val	His	Thr	Glu	Ala	Asn	Ser	Ser	Arg	Cys	Leu	Arg	Lys	Asn	Leu
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Leu	Ala	Ala	Met	Glu	Gly	Tyr	Ile	Gly	Val	Asp	Phe	Glu	Pro	Leu	Ser
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Ser	Lys	Gln	Ile	Lys	Thr	Ile	Ser	Gly	Lys	Thr	Pro	Gln	Gln	Tyr	Glu
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Phe	Asn	Tyr	Thr	Asp	His	Thr	Leu	Gly	Arg	Ile	Ile	Leu	Asn	Ala	Met
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Thr	Ile	Ile	Leu	Glu	Gln	Leu	Arg	Lys	Ile	Ser	Leu	Pro	Leu	Tyr	Ser
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Tyr	Thr	Thr	Ala	Phe	Gly	Ala	Met	Phe	Ala	Lys	Thr	Trp	Arg	Val	His
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Leu	Ile	Cys	Trp	Gln	Ala	Val	Asp	Pro	Leu	Arg	Arg	Thr	Val	Glu	Lys
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Tyr	Ser	Met	Glu	Pro	Asp	Pro	Ala	Gly	Arg	Asp	Ile	Ser	Ile	Arg	Pro
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Val	Tyr	Ala	Tyr	Lys	Gly	Leu	Leu	Met	Leu	Phe	Gly	Cys	Phe	Leu	Ala

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Asp	Ile	Leu	Asn	Leu	Gly	Asn	Phe	Thr	Glu	Ser	Thr	Asp	Gly	Gly	Lys		
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Ala	Ile	Leu	Lys	Asn	His	Leu	Asp	Gln	Asn	Pro	Gln	Leu	Gln	Trp	Asn		
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Thr	Thr	Glu	Pro	Ser	Arg	Thr	Cys	Lys	Asp	Pro	Ile	Glu	Asp	Ile	Asn		
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Ser	Pro	Glu	His	Ile	Gln	Arg	Arg	Leu	Ser	Leu	Gln	Leu	Pro	Ile	Leu		
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Ser	Pro	Cys	Val	Ser	Pro	Thr	Ala	Ser	Pro	Arg	His	Arg	His	Val	Pro		
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<213> Mus musculus

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Gln Val Lys Ala Ile Asn Phe Leu Pro Val Asp Tyr Glu Ile Glu Tyr
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Val Cys Arg Gly Glu Arg Glu Val Val Gly Pro Lys Val Arg Lys Cys
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Leu Ala Asn Gly Ser Trp Thr Asp Met Asp Thr Pro Ser Arg Cys Val
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Arg Ile Cys Ser Lys Ser Tyr Leu Thr Leu Glu Asn Gly Lys Val Phe
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Leu Thr Gly Gly Asp Leu Pro Ala Leu Asp Gly Ala Arg Val Asp Phe
115 120 125
Arg Cys Asp Pro Asp Phe His Leu Val Gly Ser Ser Arg Ser Ile Cys
130 135 140
Ser Gln Gly Gln Trp Ser Thr Pro Lys Pro His Cys Gln Val Asn Arg
145 150 155 160
Thr Pro His Ser Glu Arg Arg Ala Val Tyr Ile Gly Ala Leu Phe Pro
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Met Ser Gly Gly Trp Pro Gly Gly Gln Ala Cys Gln Pro Ala Val Glu
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Met Ala Leu Glu Asp Val Asn Ser Arg Arg Asp Ile Leu Pro Asp Tyr
195 200 205

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Leu	Met	Pro	Gly	Cys	Ser	Ser	Val	Ser	Thr	Leu	Val	Ala	Glu	Ala	Ala
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Arg	Met	Trp	Asn	Leu	Ile	Val	Leu	Ser	Tyr	Gly	Ser	Ser	Ser	Pro	Ala
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Leu	Ser	Asn	Arg	Gln	Arg	Phe	Pro	Thr	Phe	Phe	Arg	Thr	His	Pro	Ser
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Ala	Thr	Leu	His	Asn	Pro	Thr	Arg	Val	Lys	Leu	Phe	Glu	Lys	Trp	Gly
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Trp	Lys	Lys	Ile	Ala	Thr	Ile	Gln	Gln	Thr	Thr	Glu	Val	Phe	Thr	Ser
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Thr	Leu	Asp	Asp	Leu	Glu	Glu	Arg	Val	Lys	Glu	Ala	Gly	Ile	Glu	Ile
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Thr	Phe	Arg	Gln	Ser	Phe	Phe	Ser	Asp	Pro	Ala	Val	Pro	Val	Lys	Asn
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Glu	Ala	Arg	Lys	Val	Phe	Cys	Glu	Val	Tyr	Lys	Glu	Arg	Leu	Phe	Gly
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Lys	Lys	Tyr	Val	Trp	Phe	Leu	Ile	Gly	Trp	Tyr	Ala	Asp	Asn	Trp	Phe
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Lys	Thr	Tyr	Asp	Pro	Ser	Ile	Asn	Cys	Thr	Val	Glu	Glu	Met	Thr	Glu
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Ala	Val	Glu	Gly	His	Ile	Thr	Thr	Glu	Ile	Val	Met	Leu	Asn	Pro	Ala
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Asn	Thr	Arg	Ser	Ile	Ser	Asn	Met	Thr	Ser	Gln	Glu	Phe	Val	Glu	Lys
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Leu	Thr	Lys	Arg	Leu	Lys	Arg	His	Pro	Glu	Glu	Thr	Gly	Gly	Phe	Gln
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Trp	Ser	Lys	Thr	Asp	Lys	Trp	Ile	Gly	Gly	Ser	Pro	Pro	Ala	Asp	Gln
				565					570					575	
Thr	Leu	Val	Ile	Lys	Thr	Phe	Arg	Phe	Leu	Ser	Gln	Lys	Leu	Phe	Ile
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Leu	Ser	Phe	Asn	Ile	Tyr	Asn	Ser	His	Ala	Arg	Tyr	Ile	Gln	Asn	Ser
	610					615					620				
Gln	Pro	Asn	Leu	Asn	Asn	Leu	Thr	Ala	Val	Gly	Cys	Ser	Leu	Ala	Leu
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Ala	Val	Val	Phe	Pro	Leu	Gly	Leu	Asp	Gly	Tyr	His	Ile	Gly	Arg	Ser
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Gln	Phe	Pro	Phe	Val	Cys	Gln	Ala	Arg	Leu	Trp	Leu	Leu	Gly	Leu	Gly
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Phe	Ser	Leu	Gly	Tyr	Gly	Ser	Met	Phe	Thr	Lys	Ile	Trp	Trp	Val	His
		675					680					685			
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	690					695					700				

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 Val Leu Thr Leu Ala Ile Trp Gln Ile Val Asp Pro Leu His Arg Thr
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 Ile Glu Thr Phe Ala Lys Glu Glu Pro Lys Glu Asp Ile Asp Val Ser
 740 745 750
 Ile Leu Pro Gln Leu Glu His Cys Ser Ser Lys Lys Met Asn Thr Trp
 755 760 765
 Leu Gly Ile Phe Tyr Gly Tyr Lys Gly Leu Leu Leu Leu Gly Ile
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 Phe Leu Ala Tyr Glu Thr Lys Ser Val Ser Thr Glu Lys Ile Asn Asp
 785 790 795 800
 His Arg Ala Val Gly Met Ala Ile Tyr Asn Val Ala Val Leu Cys Leu
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 Ile Thr Ala Pro Val Thr Met Ile Leu Ser Ser Gln Gln Asp Ala Ala
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 Phe Ala Phe Ala Ser Leu Ala Ile Val Phe Ser Ser Tyr Ile Thr Leu
 835 840 845
 Val Val Leu Phe Val Pro Lys Met Arg Arg Leu Ile Thr Arg Gly Glu
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 Trp Gln Ser Glu Thr Gln Asp Thr Met Lys Thr Gly Ser Ser Thr Asn
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 Asn Asn Glu Glu Glu Lys Ser Arg Leu Leu Glu Lys Glu Asn Arg Glu
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 Leu Glu Lys Ile Ile Ala Glu Lys Glu Glu Arg Val Ser Glu Leu Arg
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 His Gln Leu Gln Ser Arg Gln Gln Leu Arg Ser Arg Arg His Pro Pro
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 50 55 60
 Tyr Val Cys Arg Gly Glu Arg Glu Val Val Gly Pro Lys Val Arg Lys
 65 70 75 80
 Cys Leu Ala Asn Gly Ser Trp Thr Asp Met Asp Thr Pro Ser Arg Cys
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 115 120 125
 Phe Arg Cys Asp Pro Asp Phe His Leu Val Gly Ser Ser Arg Ser Ile
 130 135 140
 Cys Ser Gln Gly Gln Trp Ser Thr Pro Lys Pro His Cys Gln Val Asn
 145 150 155 160
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 <213> Homo Sapiens

 <400> 35 46
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 <210> 38
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 ccgctc

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<210> 41

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<210> 42

<211> 753

<212> PRT

<213> Caenorabditis elegans

<400> 42

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Ala	Ser	Ala	Glu	Pro	Val	Thr	Leu	His	Ile	Gly	Gly	Thr	Phe	Pro	Met
			20					25					30		
Glu	Ser	Gly	Ser	Gly	Gly	Trp	Ala	Gly	Gly	Glu	Ala	Cys	Leu	Pro	Ala
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Val	Glu	Met	Ala	Leu	Lys	Asp	Val	Asn	Ser	Arg	Leu	Asp	Ile	Leu	Pro
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Gly	Tyr	Val	Leu	Asn	Met	Thr	Asn	His	Asn	Ser	Gln	Cys	Gln	Pro	Gly
	65				70					75				80	
Leu	Ala	Met	Gln	Gln	Leu	Tyr	Asp	Phe	Leu	Tyr	Lys	Pro	Pro	Thr	Lys
			85						90					95	
Leu	Met	Leu	Leu	Thr	Gly	Cys	Ser	Pro	Val	Thr	Thr	Val	Ile	Ala	Glu
		100						105					110		
Ala	Ala	Pro	Val	Trp	Lys	Leu	Val	Val	Leu	Ser	Tyr	Gly	Gly	Ser	Ser
		115					120					125			
Pro	Ala	Leu	Ser	Asn	Arg	Asn	Arg	Phe	Pro	Thr	Leu	Phe	Arg	Thr	His
	130					135					140				
Pro	Ser	Ala	Asn	Met	Gln	Asn	Pro	Thr	Arg	Ile	His	Ile	Met	Glu	Lys
	145				150					155				160	
Phe	Lys	Trp	Lys	Arg	Phe	Thr	Ile	Leu	Met	Ser	Val	Glu	Glu	Val	Phe
			165					170						175	
Val	Thr	Thr	Ala	Lys	Asp	Leu	Glu	Val	Ser	Glu	Arg	Lys	Lys	Gly	Ile
		180						185					190		
Lys	Val	Asp	Arg	Gln	Ser	Phe	Tyr	Gly	Asp	Pro	Thr	Asp	Ala	Met	Lys
	195						200					205			
Thr	Leu	Gln	Arg	Gln	Asp	Ala	Arg	Ile	Ile	Val	Gly	Leu	Phe	Tyr	Val
	210				215						220				
Thr	Glu	Ala	Arg	Lys	Val	Leu	Cys	Gln	Ala	Tyr	His	His	Gly	Leu	Tyr
	225				230					235				240	
Gly	Arg	Arg	Tyr	Val	Trp	Phe	Phe	Ile	Gly	Trp	Tyr	Ala	Asp	Thr	Trp
			245						250					255	
Tyr	Ile	Pro	Pro	Pro	Glu	Glu	His	Leu	Asn	Cys	Thr	Ala	Glu	Gln	Met
		260						265					270		
Thr	Glu	Ala	Ala	Glu	Tyr	His	Phe	Thr	Thr	Glu	Ser	Val	Met	Leu	Ser
	275						280					285			
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	290					295					300				
Gln	Arg	Leu	Thr	Gln	Tyr	Phe	Gln	Lys	Asp	Thr	Ala	Asn	Val	Gly	Gly
	305				310					315				320	
Phe	Pro	Glu	Ala	Pro	Leu	Ala	Tyr	Asp	Ala	Val	Trp	Ala	Leu	Ala	Leu
			325						330					335	
Ala	Phe	Asn	Cys	Thr	Arg	Asn	Asn	Leu	Pro	Ser	His	Ile	Arg	Leu	Glu

				340				345					350				
Asn	Phe	Thr	Tyr	Asp	Asn	Lys	Val	Ile	Ala	Asp	Thr	Leu	Phe	Gln	Cys		
		355					360					365					
Val	Lys	Asn	Thr	Ser	Phe	Arg	Gly	Val	Ser	Gly	Lys	Val	Met	Phe	Ser		
	370					375					380						
Asp	Ser	Gly	Asp	Arg	Ile	Ala	Arg	Thr	Gln	Ile	Glu	Gln	Met	Gln	Gly		
385					390					395					400		
Gly	Lys	Tyr	Lys	Ile	Met	Gly	Tyr	Tyr	Asp	Thr	Thr	Ser	Gly	Asp	Leu		
				405					410					415			
Glu	Trp	Tyr	Asn	Lys	Glu	Gln	Trp	Leu	Asn	Gly	Lys	Gly	Pro	Pro	Pro		
			420					425					430				
Asp	Ser	Thr	Val	Ile	Lys	Thr	Phe	Asn	Ser	Tyr	Ser	Asp	Phe	Leu	Ile		
		435					440					445					
Phe	Ser	Ser	Thr	Ile	Leu	Gln	Tyr	Phe	Ser	Gln	Phe	Leu	Ala	Leu	Leu		
	450					455					460						
His	Val	Ser	Ser	Phe	Thr	Phe	Leu	His	Lys	Asn	Ile	Ile	Phe	Gln	Ser		
465					470					475					480		
Gln	Pro	Glu	Cys	Asn	Asn	Ile	Leu	Leu	Ile	Gly	Cys	Ser	Leu	Cys	Leu		
				485					490					495			
Phe	Ser	Leu	Phe	Leu	Ile	Gly	Leu	Pro	Ser	Asp	Asp	Ile	Ser	Ile	Ser		
			500					505					510				
Glu	Ser	Leu	Phe	Pro	Leu	Leu	Cys	His	Ala	Arg	Val	Thr	Ile	Leu	Leu		
		515					520					525					
Phe	Gly	Phe	Thr	Phe	Ala	Tyr	Gly	Ser	Met	Phe	Ala	Lys	Val	Trp	Ile		
	530					535					540						
Val	His	Arg	Met	Gly	Ala	Thr	Glu	Asn	Gln	Gln	Leu	Ala	Ser	Arg	Gln		
545					550					555					560		
Pro	Ile	Ser	Ser	Ser	Lys	Phe	Tyr	Val	Ile	Val	Ala	Ala	Leu	Thr	Ala		
				565					570					575			
Val	Asp	Val	Phe	Val	Cys	Phe	Val	Trp	Val	Leu	Ile	Asp	Pro	Leu	His		
			580					585					590				
Leu	Thr	Glu	Gln	Lys	Phe	Pro	Leu	Phe	Ala	Asp	Ser	Glu	Glu	Asp	Glu		
		595					600					605					
Met	Ile	Met	Pro	Val	Leu	Gln	Gln	Cys	Gln	Ser	Asn	Gln	Gln	Glu	Val		
	610					615					620						
Trp	Ile	Gly	Ile	Ile	Met	Gly	Phe	Lys	Cys	Leu	Leu	Val	Phe	Gly			
625					630					635				640			
Thr	Phe	Leu	Ser	Tyr	Glu	Thr	Arg	Asn	Leu	Lys	Leu	Arg	Phe	Ile	Asn		
				645					650					655			
Asp	Ser	Arg	Phe	Val	Gly	Leu	Ala	Ile	Tyr	Asn	Val	Ala	Val	Met	Thr		
			660					665					670				
Leu	Val	Thr	Ala	Pro	Val	Val	Thr	Leu	Leu	Ile	His	Gly	Lys	Val	Asp		
		675					680					685					
Ala	Asn	Phe	Ala	Phe	Ile	Ser	Leu	Thr	Ser	Val	Leu	Ile	Cys	Thr	Tyr		
	690					695					700						
Ile	Ser	Val	Gly	Leu	Ile	Tyr	Gly	Pro	Lys	Ile	Arg	His	Ile	Ile	Lys		
705					710					715					720		
Val	Pro	Pro	Ser	Ala	Asp	Glu	Ile	Gln	Leu	Asn	Gly	Asn	Val	Gly	Pro		
				725					730					735			
Gly	Val	Met	Ser	Lys	Val	Asp	Gln	Lys	Arg	Tyr	Asp	Met	Leu	Lys	Lys		
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<210> 43
 <211> 659
 <212> PRT
 <213> Caenorabditis elegans

<400> 43
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Thr	Ala	Leu	Ser	His	Val	His	Ser	Arg	Ser	Cys	Ile	Leu	Gln	Gly	Tyr
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Arg	Leu	Glu	Met	Ile	Val	Lys	Asp	Thr	His	Cys	Lys	Thr	Ser	Gln	Gly
	50					55					60				
Met	Lys	Ala	Leu	Phe	Asp	Leu	Ile	Ala	Ser	Arg	Pro	Arg	Pro	Val	Ala
65					70					75					80
Ile	Leu	Gly	Gly	Gln	Cys	Thr	Glu	Val	Asn	Glu	Pro	Ile	Ala	Met	Ala
				85					90					95	
Leu	Lys	Tyr	Trp	Gln	Ile	Val	Gln	Leu	Ser	Tyr	Ala	Glu	Thr	His	Ala
			100					105					110		
Met	Asn	Gly	Gln	Leu	Gln	Leu	Phe	Thr	Thr	Phe	Phe	Arg	Val	Val	Pro
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Gly	Ser	Arg	Asn	Thr	Asn	Met	Ala	Lys	Cys	Lys	Phe	Val	Asn	His	Phe
	130					135					140				
Gly	Trp	Lys	Arg	Val	Gly	Thr	Val	Lys	Gln	Asn	Asp	Gln	Pro	Arg	Tyr
145					150					155					160
Ala	Leu	Val	Arg	Asp	Val	Arg	Ile	Ile	Leu	Val	Asp	Val	Asp	Glu	Glu
				165					170					175	
Met	Ala	Ala	Thr	Val	Leu	Cys	Ala	Gly	Tyr	His	Arg	Gly	Met	Tyr	Gly
			180					185					190		
Asp	Asn	Tyr	Val	Trp	Ile	Leu	Pro	Gly	Tyr	His	Ser	Asp	Arg	Trp	Leu
	195						200					205			
Asn	Gln	Thr	His	Asp	Asn	Cys	Thr	Val	Glu	Glu	Met	Arg	Glu	Ala	Ala
	210					215					220				
Lys	Asn	His	Phe	Ser	Val	Glu	Phe	Ala	Leu	Thr	Arg	Arg	Asp	Val	Asp
225					230					235					240
Thr	Lys	Ile	Val	Gly	Asn	Thr	Val	Ser	Pro	Tyr	Val	Thr	Leu	Asn	Leu
			245					250					255		
Phe	Gln	Arg	Ala	Gly	Asp	Val	Trp	Asn	Glu	Ile	Thr	Gln	Leu	Asp	Pro
			260					265					270		
Asn	Asn	Thr	Trp	Arg	Gly	Tyr	Leu	Tyr	Asp	Gly	Leu	Trp	Thr	Leu	Ala
		275					280					285			
Ile	Ala	Leu	Ser	His	Ser	Met	Gly	Asp	Asn	Ala	Glu	Phe	Ser	His	His
	290					295					300				
Lys	Met	Met	Glu	Ala	Ile	Asp	Asn	Ser	Ser	Phe	Gln	Gly	Leu	Thr	Gly
305					310					315					320
Lys	Val	Lys	Phe	Ala	Asn	Asn	Glu	Arg	Leu	Gly	Leu	Val	Asp	Ile	Lys
			325						330					335	
Gln	Trp	Ser	Asp	Gly	Gln	Tyr	Val	Pro	Phe	Ala	Val	Tyr	Asp	Gly	Ala
			340					345					350		
Asp	Asp	Glu	Phe	Lys	Ile	Ile	Asp	Ser	Thr	Thr	Lys	Gly	Trp	Ser	Pro
		355					360					365			
Pro	Leu	Asp	Ser	Thr	Ile	Thr	Glu	Arg	Arg	Arg	Glu	His	Ile	Ser	Ser
	370					375					380				
Ile	Leu	Phe	Leu	Ala	Met	Ser	Leu	Leu	Ala	Leu	Ile	Gly	Ile	Phe	Leu
385					390					395					400
Ala	Leu	Ile	Phe	Leu	Leu	Ile	Asn	Phe	Arg	Tyr	Arg	Asn	His	Arg	Phe
				405					410					415	
Ile	Lys	Met	Ser	Ser	Pro	Asn	Leu	Asn	Asn	Ile	Ile	Ile	Ala	Gly	Ser
			420					425					430		
Ile	Cys	Thr	Phe	Ala	Ser	Val	Ile	Met	Leu	Gly	Leu	Asp	Thr	Arg	Ile
		435					440					445			
Val	Ser	Pro	Asp	Val	Phe	Val	Trp	Leu	Cys	Tyr	Thr	Lys	Thr	Trp	Thr
	450					455					460				
Leu	Cys	Ile	Gly	Phe	Thr	Leu	Ser	Phe	Gly	Ala	Met	Phe	Ser	Lys	Thr
465					470					475					480
Trp	Arg	Val	His	Ser	Ile	Phe	Thr	Asn	Ile	Arg	Met	Asp	Arg	Lys	Ala
				485					490					495	
Ile	Lys	Asp	Ser	Lys	Leu	Phe	Ile	Ile	Leu	Gly	Ile	Leu	Leu	Phe	Ile
			500					505					510		

Asp Ile Cys Val Leu Val Thr Trp Ala Phe Val Ser Pro Phe Ser Tyr
 515 520 525
 Thr Val Glu Gln Phe Lys Phe Leu Ile Phe Ser Ala Arg Arg Asn Ile
 530 535 540
 Val Ile Ile Pro Glu Val Glu Lys Cys Asn Ser Ser His Ser Gly Val
 545 550 555 560
 Phe Gln Ala Val Leu Tyr Ala Val Lys Gly Val Leu Met Ile Leu Gly
 565 570 575
 Cys Phe Leu Ala Trp Glu Thr Arg His Val Asn Val Pro Ala Leu Asn
 580 585 590
 Asp Ser Lys Tyr Ile Gly Thr Ser Val Tyr Cys Cys Val Val Met Ser
 595 600 605
 Val Leu Gly Leu Ser Thr Ser Val Ile Leu Gln Glu Arg Val Asn Glu
 610 615 620
 Met Phe Ser Leu Ala Ser Phe Phe Val Ile Phe Ser Thr Thr Leu Thr
 625 630 635 640
 Leu Cys Leu Val Phe Val Pro Lys Val Arg Phe Leu Glu Leu Cys Cys
 645 650 655
 Ile Gly Ser

<210> 44
 <211> 585
 <212> PRT
 <213> Homo Sapiens

<400> 44
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 Ser Ser Gln Arg Ser Val Ala Arg Met Asp Gly Asp Val Ile Ile Gly
 35 40 45
 Ala Leu Phe Ser Val His His Gln Pro Pro Ala Glu Lys Val Pro Glu
 50 55 60
 Arg Lys Cys Gly Glu Ile Arg Glu Gln Tyr Gly Ile Gln Arg Val Glu
 65 70 75 80
 Ala Met Phe His Thr Leu Asp Lys Ile Asn Ala Asp Pro Val Leu Leu
 85 90 95
 Pro Asn Ile Thr Leu Gly Ser Glu Ile Arg Asp Ser Cys Trp His Ser
 100 105
 Ser Val Ala Leu Glu Gln Ser Ile Glu Phe Ile Arg Asp Ser Leu Ile
 115 120 125
 Ser Ile Arg Asp Glu Lys Asp Gly Ile Asn Arg Cys Leu Pro Asp Gly
 130 135 140
 Gln Ser Leu Pro Pro Gly Arg Thr Lys Lys Pro Ile Ala Gly Val Ile
 145 150 155 160
 Gly Pro Gly Ser Ser Ser Val Ala Ile Gln Val Gln Asn Leu Leu Gln
 165 170 175
 Leu Phe Asp Ile Pro Gln Ile Ala Tyr Ser Ala Thr Ser Ile Asp Leu
 180 185 190
 Ser Asp Lys Thr Leu Tyr Lys Tyr Phe Leu Arg Val Val Pro Ser Asp
 195 200 205
 Thr Leu Gln Ala Arg Ala Met Leu Asp Ile Val Lys Arg Tyr Asn Trp
 210 215 220
 Thr Tyr Val Ser Ala Val His Thr Glu Gly Asn Tyr Gly Glu Ser Gly
 225 230 235 240
 Met Asp Ala Phe Lys Glu Leu Ala Ala Gln Glu Gly Leu Cys Ile Ala
 245 250 255
 His Ser Asp Lys Ile Tyr Ser Asn Ala Gly Glu Lys Ser Phe Asp Arg
 260 265 270
 Leu Leu Arg Lys Leu Arg Glu Arg Leu Pro Lys Ala Arg Val Val Val

		275					280					285				
Cys	Phe	Cys	Glu	Gly	Met	Thr	Val	Arg	Gly	Leu	Leu	Ser	Ala	Met	Arg	
	290					295					300					
Arg	Leu	Gly	Val	Val	Gly	Glu	Phe	Ser	Leu	Ile	Gly	Ser	Asp	Gly	Trp	
305					310					315					320	
Ala	Asp	Arg	Asp	Glu	Val	Ile	Glu	Gly	Tyr	Glu	Val	Glu	Ala	Asn	Gly	
				325					330					335		
Gly	Ile	Thr	Ile	Lys	Leu	Gln	Ser	Pro	Glu	Val	Arg	Ser	Phe	Asp	Asp	
			340					345					350			
Tyr	Phe	Leu	Lys	Leu	Arg	Leu	Asp	Thr	Asn	Thr	Arg	Asn	Pro	Trp	Phe	
		355					360					365				
Pro	Glu	Phe	Trp	Gln	His	Arg	Phe	Gln	Cys	Arg	Leu	Pro	Gly	His	Leu	
	370					375					380					
Leu	Glu	Asn	Pro	Asn	Phe	Lys	Arg	Ile	Cys	Thr	Gly	Asn	Glu	Ser	Leu	
385					390						395				400	
Glu	Glu	Asn	Tyr	Val	Gln	Asp	Ser	Lys	Met	Gly	Phe	Val	Ile	Asn	Ala	
				405					410					415		
Ile	Tyr	Ala	Met	Ala	His	Gly	Leu	Gln	Asn	Met	His	His	Ala	Leu	Cys	
			420					425					430			
Pro	Gly	His	Val	Gly	Leu	Cys	Asp	Ala	Met	Lys	Pro	Ile	Asp	Gly	Ser	
		435					440					445				
Lys	Leu	Leu	Asp	Phe	Leu	Ile	Lys	Ser	Ser	Phe	Ile	Gly	Val	Ser	Gly	
	450					455					460					
Glu	Glu	Val	Trp	Phe	Asp	Glu	Lys	Gly	Asp	Ala	Pro	Gly	Arg	Tyr	Asp	
465					470					475					480	
Ile	Met	Asn	Leu	Gln	Tyr	Thr	Glu	Ala	Asn	Arg	Tyr	Asp	Tyr	Val	His	
				485					490					495		
Val	Gly	Thr	Trp	His	Glu	Gly	Val	Leu	Asn	Ile	Asp	Asp	Tyr	Lys	Ile	
			500					505					510			
Gln	Met	Asn	Lys	Ser	Gly	Val	Val	Arg	Ser	Val	Cys	Ser	Glu	Pro	Cys	
		515					520					525				
Leu	Lys	Gly	Gln	Ile	Lys	Val	Ile	Arg	Lys	Gly	Glu	Val	Ser	Cys	Cys	
	530					535					540					
Trp	Ile	Cys	Thr	Ala	Cys	Lys	Glu	Asn	Glu	Tyr	Val	Gln	Asp	Glu	Phe	
545					550					555					560	
Thr	Cys	Lys	Ala	Cys	Asp	Leu	Gly	Trp	Trp	Pro	Asn	Ala	Asp	Leu	Thr	
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<211> 369
<212> PRT
<213> Escherichia coli
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			20					25					30			
Ala	Met	Ser	Gly	Pro	Ile	Ala	Gln	Trp	Gly	Ile	Met	Glu	Phe	Asn	Gly	
		35					40					45				
Ala	Glu	Gln	Ala	Ile	Lys	Asp	Ile	Asn	Ala	Lys	Gly	Gly	Ile	Lys	Gly	
	50					55					60					
Asp	Lys	Leu	Val	Gly	Val	Glu	Tyr	Asp	Asp	Ala	Cys	Asp	Pro	Lys	Gln	
65					70					75					80	
Ala	Val	Ala	Val	Ala	Asn	Lys	Ile	Val	Asn	Asp	Gly	Ile	Lys	Tyr	Val	
				85					90					95		
Ile	Gly	His	Leu	Cys	Ser	Ser	Ser	Thr	Gln	Pro	Ala	Ser	Asp	Ile	Tyr	
			100					105					110			
Glu	Asp	Glu	Gly	Ile	Leu	Met	Ile	Ser	Pro	Gly	Ala	Thr	Ala	Pro	Glu	
		115					120					125				

Leu Thr Gln Arg Gly Tyr Gln His Ile Met Arg Thr Ala Gly Leu Asp
 130 135 140
 Ser Ser Gln Gly Pro Thr Ala Ala Lys Tyr Ile Leu Glu Thr Val Lys
 145 150 155 160
 Pro Gln Arg Ile Ala Ile Ile His Asp Lys Gln Gln Tyr Gly Glu Gly
 165 170 175
 Leu Ala Arg Ser Val Gln Asp Gly Leu Lys Ala Ala Asn Ala Asn Val
 180 185 190
 Val Phe Phe Asp Gly Ile Thr Ala Gly Glu Lys Asp Phe Ser Ala Leu
 195 200 205
 Ile Ala Arg Leu Lys Lys Glu Asn Ile Asp Phe Val Tyr Tyr Gly Gly
 210 215 220
 Tyr Tyr Pro Glu Met Gly Gln Met Leu Arg Gln Ala Arg Ser Val Gly
 225 230 235 240
 Leu Lys Thr Gln Phe Met Gly Pro Glu Gly Val Gly Asn Ala Ser Leu
 245 250 255
 Ser Asn Ile Ala Gly Asp Ala Ala Glu Gly Met Leu Val Thr Met Pro
 260 265 270
 Lys Arg Tyr Asp Gln Asp Pro Ala Asn Gln Gly Ile Val Asp Ala Leu
 275 280 285
 Lys Ala Asp Lys Lys Asp Pro Ser Gly Pro Tyr Val Trp Ile Thr Tyr
 290 295 300
 Ala Ala Val Gln Ser Leu Ala Thr Ala Leu Glu Arg Thr Gly Ser Asp
 305 310 315 320
 Glu Pro Leu Ala Leu Val Lys Asp Leu Lys Ala Asn Gly Ala Asn Thr
 325 330 335
 Val Ile Gly Pro Leu Asn Trp Asp Glu Lys Gly Asp Leu Lys Gly Phe
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 Asp Phe Gly Val Phe Gln Trp His Ala Asp Gly Ser Ser Thr Ala Ala
 355 360 365
 Lys

<210> 46
 <211> 344
 <212> PRT
 <213> Escherichia coli

<400> 46
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 35 40 45
 Tyr Asp Asp Ala Cys Asp Pro Lys Gln Ala Val Ala Val Ala Asn Lys
 50 55 60
 Val Val Asn Asp Gly Ile Lys Tyr Val Ile Gly His Leu Cys Ser Ser
 65 70 75 80
 Ser Thr Gln Pro Ala Ser Asp Ile Tyr Glu Asp Glu Gly Ile Leu Met
 85 90 95
 Ile Thr Pro Ala Ala Thr Ala Pro Glu Leu Thr Ala Arg Gly Tyr Gln
 100 105 110
 Leu Ile Leu Arg Thr Thr Gly Leu Asp Ser Asp Gln Gly Pro Thr Ala
 115 120 125
 Ala Lys Tyr Ile Leu Glu Lys Val Lys Pro Gln Arg Ile Ala Ile Val
 130 135 140
 His Asp Lys Gln Gln Tyr Gly Glu Gly Leu Ala Arg Ala Val Gln Asp
 145 150 155 160
 Gly Leu Lys Lys Gly Asn Ala Asn Val Val Phe Phe Asp Gly Ile Thr
 165 170 175
 Ala Gly Glu Lys Asp Phe Ser Thr Leu Val Ala Arg Leu Lys Lys Glu

			180					185				190					
Asn	Ile	Asp	Phe	Val	Tyr	Tyr	Gly	Gly	Tyr	His	Pro	Glu	Met	Gly	Gln		
		195					200					205					
Ile	Leu	Arg	Gln	Ala	Arg	Ala	Ala	Gly	Leu	Lys	Thr	Gln	Phe	Met	Gly		
	210					215					220						
Pro	Glu	Gly	Val	Ala	Asn	Val	Ser	Leu	Ser	Asn	Ile	Ala	Gly	Glu	Ser		
225					230					235					240		
Ala	Glu	Gly	Leu	Leu	Val	Thr	Lys	Pro	Lys	Asn	Tyr	Asp	Gln	Val	Pro		
			245						250					255			
Ala	Asn	Lys	Pro	Ile	Val	Asp	Ala	Ile	Lys	Ala	Lys	Lys	Gln	Asp	Pro		
			260					265					270				
Ser	Gly	Ala	Phe	Val	Trp	Thr	Thr	Tyr	Ala	Ala	Leu	Gln	Ser	Leu	Gln		
		275					280					285					
Ala	Gly	Leu	Asn	Gln	Ser	Asp	Asp	Pro	Ala	Glu	Ile	Ala	Lys	Tyr	Leu		
	290					295					300						
Lys	Ala	Asn	Ser	Val	Asp	Thr	Val	Met	Gly	Pro	Leu	Thr	Trp	Asp	Glu		
305					310					315					320		
Lys	Gly	Asp	Leu	Lys	Gly	Phe	Glu	Phe	Gly	Val	Phe	Asp	Trp	His	Ala		
			325						330					335			
Asn	Gly	Thr	Ala	Thr	Asp	Ala	Lys										
			340														